

Referring to page 2 of the Office Action, Claims 1-2 and 4-12 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Shinohara. Applicants traverse for the following reasons.

Independent Claim 1 is directed to a separator for non-aqueous electrolyte secondary battery, wherein the separator comprises a shut-down layer, a heat-resistant microporous layer, and a spacer having a form of particles, fibers, net or porous film on the surface of the heat-resistant microporous layer. The heat-resistant microporous layer comprises at least one heat-resistant resin selected from resins having a temperature of deflection under load of 18.6 kg/cm^2 of 100°C or more, and the thickness of the spacer is from 0.02 to $3 \text{ }\mu\text{m}$.

Independent Claim 12 is directed to a separator for non-aqueous electrolyte secondary battery, the separator comprising a shut down layer, a heat-resistant microporous layer, and a spacer having a form of particles, fibers, net or porous film, on the surface of the heat-resistant microporous layer. The heat-resistant microporous layer comprises at least one heat-resistant resin selected from resins having a temperature of deflection under load of 18.6 kg/cm^2 of 100°C or more, and the shut-down layer, the heat-resistant microporous layer and the spacer being in this order.

It is asserted that Shinohara teaches a non-aqueous battery separator comprising: a thermoplastic polymer fiber substrate, embracing a shut-down layer of the present invention; a microporous heat-resistant nitrogen-containing aromatic polymer with a porosity of less than $1 \text{ }\mu\text{m}$; and a thermoplastic spacer formed from a fine particle-like suspension. However,

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No.: 09/940,474
Attorney Docket No.: Q65911

Shinohara fails to teach or suggest the features recited in the claims of the present invention, as discussed below.

The shut-down layer of the present invention is a layer having a shut-down function and is, for example, usually a microporous layer, which is different from the fiber substrate disclosed in Shinohara. There is no description or suggestion in Shinohara that the thermoplastic polymer fiber substrate has shut-down function. The disclosure at column 10, lines 1-10, is relied upon for teaching that a thermoplastic spacer formed from a fine particle-like suspension embraces a spacer of the present invention. This is not correct. Rather, this disclosure of Shinohara states: “for imparting or reinforcing shut down property,” which is a description to form a shut-down layer. Thus, Shinohara does not teach or suggest a spacer which separates the surface of the heat-resistant layer from an adjacent electrode, as recited in the claims of the present invention.

Additionally, a spacer of the present invention does not have shut-down property because the spacer is too thin to shut down electric current. Therefore, the assertion that Shinohara teaches or suggests a thermoplastic spacer of the present invention is not correct. There is also no teaching or suggestion in Shinohara of the thickness of the spacer, as recited in the present claims.

Moreover, contrary to the assertions at page 4 of the Office Action, the modification of a spacer thickness to the range recited in the present invention would not involve a mere change in the size of a component. It would be difficult for even one of ordinary skill in the art to select the thickness a spacer, as there is no teaching or suggestion of a spacer in Shinohara.

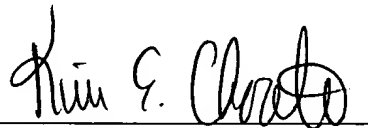
RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No.: 09/940,474
Attorney Docket No.: Q65911

In light of the above, the rejection of Claims 1-2 and 4-12 under 35 U.S.C. § 103(a) over Shinohara is not proper. Therefore, the withdrawal of the rejection is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Kim E. Choate
Registration No. 57,102

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: January 3, 2007